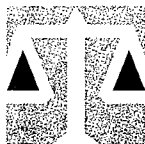


APPENDIX

Exhibit	Title
A	Rand Institute for Civil Justice, <i>Asbestos Litigation Costs and Compensation: An Interim Report</i> 20 (2002)
B	Lester Brickman, <i>Lawyers' Ethics and Fiduciary Obligation in the Brave New World of Aggregative Litigation</i> , 26 Wm. & Mary Env'tl. L. & Pol'y Rev. 243 (2001)
C	<i>The Manville Personal Injury Settlement Trust X-Ray Audit: An Assessment of the Identification of the Underlying Disease Process Implications for Medical Review by Certified B-Readers</i> (1998)
D	Lester Brickman, <i>On the Theory Class's Theories of Asbestos Litigation: The Disconnect Between Scholarship and Reality</i> , 31 Pepp. L. Rev. 34, 132 (2003)
E	R.B. Reger, W.S. Cole, E.N. Sargent & P.S. Wheeler, <i>Cases of Alleged Asbestos-Related Disease: A Radiologic Re-Evaluation</i> , Vol. 32, No. 11, Journal of Occupational Medicine 1088 (Nov. 1990)
F	<i>Expert Report of Dr. Gary K. Friedman, In re Owens-Corning, Case Nos. 00-3837 to 3854 (Bankr. D. Del. 2002)</i>
G	Joseph N. Gitlin, Leroy L. Cook, Otha W. Linton & Elizabeth Garrett-Mayer, <i>Comparison of "B" Readers' Interpretations of Chest Radiographs for Asbestos Related Changes</i> , Acad. Radiol. 2004; 11:843-856
H	<i>Explicit Instructions re Preparing for Your Deposition</i>

Appendix Exhibit A



Documented Briefing

Asbestos Litigation Costs and Compensation

An Interim Report

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PREFACE

The RAND Institute for Civil Justice (ICJ) began analyzing asbestos litigation in the early 1980s. That study was the first to examine the costs and compensation paid for asbestos personal injury claims. It was followed by other research that addressed the courts' responses to asbestos litigation and a number of studies of mass tort litigation in general.

In Spring 2001, the ICJ initiated a new study on asbestos litigation, now the longest-running mass tort litigation in U.S. history. In this study, ICJ researchers are revisiting the issues raised in the initial RAND study. How many claims have been filed? For what injuries? How much is being spent on the litigation and what is the balance between the compensation paid claimants and the costs to deliver it? What economic costs does the litigation impose on defendants and on the economy as a whole? What are the future prospects for the litigation? Are there strategies for resolving asbestos suits that would be more efficient and more equitable?

ICJ staff provided preliminary answers to these questions to the staff of the Senate Judiciary Committee and the House Judiciary Committee of the U.S. Congress in briefings on August 13 and 14, 2001. That briefing was documented in *Asbestos Litigation in the U.S.: A New Look at an Old Issue* (RAND DB-362.0-ICJ, August 2001). Since then, ICJ staff have conducted extensive analyses of data, including confidential data provided by various participants in the litigation as well as published data and information gathered from interviews with plaintiff and defense attorneys, insurance-company claims managers, financial analysts, and court-appointed neutrals. This documented briefing builds on the previous briefing and includes the results of more detailed analyses.

The final report on the project will document the analyses we conducted to arrive at the results presented in this briefing. It will also analyze alternatives to the current approach to asbestos litigation in terms of their likely effects on major stakeholders in the litigation. We expect to publish the final report in the next few months.

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THE RAND INSTITUTE FOR CIVIL JUSTICE

The mission of the RAND Institute for Civil Justice is to improve private and public decisionmaking on civil legal issues by supplying policymakers and the public with the results of objective, empirically based, analytic research. The ICJ facilitates change in the civil justice system by analyzing trends and outcomes, identifying and evaluating policy options, and bringing together representatives of different interests to debate alternative solutions to policy problems. The Institute builds on a long tradition of RAND research characterized by an interdisciplinary, empirical approach to public policy issues and rigorous standards of quality, objectivity, and independence.

ICJ research is supported by pooled grants from corporations, trade and professional associations, and individuals; by government grants and contracts; and by private foundations. The Institute disseminates its work widely to the legal, business, and research communities, and to the general public. In accordance with RAND policy, all Institute research products are subject to peer review before publication. ICJ publications do not necessarily reflect the opinions or policies of the research sponsors or of the ICJ Board of Overseers.

SUMMARY

BACKGROUND

Asbestos litigation is the longest running mass tort in U. S. history. Within the past few years, there have been sharp increases in the number of asbestos claims filed annually, the number and types of firms named as defendants, and the costs of the litigation to these defendants. These trends have led many people to question whether compensation is being divided among claimants fairly and in proportion to need, and whether responsibility for paying compensation is being allocated among defendants fairly and in proportion to culpability. Moreover, the system is costly to administer, may impose indirect costs on the economy, and may leave little or no funds to pay future asbestos victims.

STUDY PURPOSE AND APPROACH

This study is a comprehensive look at the dimensions of asbestos litigation today: How many claims have been filed? By whom? Against whom? For what kinds of conditions? At what cost? With what economic effects? If current trends continue, what will be the future costs of the litigation? The analysis is intended to provide the best estimates available of present and future consequences of the litigation so that policymakers can address the key question: whether the tort system as it now operates is the best way to resolve asbestos claims.

One of the reasons for such a study is that information on asbestos litigation is highly dispersed and usually confidential. There is no national registry of asbestos claimants. Federal courts collect data on asbestos cases, but most claims are filed in state courts, which do not report such information. Most of the data is gathered by individual defendants and insurers with a stake in the litigation. RAND researchers gained access to a good deal of this data, as well as some proprietary studies, from participants on both sides of the litigation—access that was granted under conditions of utmost confidentiality. The study team also drew upon RAND's previous research on asbestos, other analyses that are publicly available, and extensive interviews with dozens of participants with different perspectives on the litigation. The researchers have synthesized all these sources, acknowledging that they are providing only best estimates because the data are still far from complete. This briefing presents interim research findings.

ORGANIZATION

After an introduction to the study, the briefing describes the history of the litigation in an effort to explain why it has reached the scale it has today, why there are concerns about its future growth, and why it has become a matter of policy concern. It then describes the dimensions of the litigation through the year 2000, including the total number of claims, the changing composition of claims, the number of defendants and the spread of litigation across industries, the total costs of the litigation to insurers and defendants, and the potential effects of the litigation on the U.S. economy today and in the future. Finally, the briefing outlines the policy alternatives to the current litigation regime.

KEY FINDINGS

Claiming behavior:

- Over 600,000 people have filed claims, typically against dozens of defendants, for asbestos-related personal injuries through the end of 2000.
- Annual filings have risen sharply in the last few years.
- Increasing claims for nonmalignant injuries explain the recent growth in the asbestos caseload.
- The number of mesothelioma cases filed annually has been rising slowly over this period, but they represent a tiny fraction of all claims.
- Although available claims data do not distinguish consistently among different kinds of nonmalignant claims, there is widespread agreement that a majority of the claimants without cancer are functionally unimpaired, meaning that their asbestos exposure has not so far affected their ability to perform activities of daily life.
- Cases migrated to different states and venues in the late 1990s. Five states—Mississippi, New York, West Virginia, Ohio, and Texas—which accounted for only 9 percent of the cases filed before 1988 handled 66 percent of filings between 1998 and 2000.

Defendants:

- Over 6,000 companies have been named as defendants.

- The litigation has spread far beyond the asbestos and building products industries. The list of defendants now ranges across 75 out of 83 different types of industries in the U.S. Although only a few firms are involved in certain industries, the litigation has spread to touch almost every type of economic activity in the U.S.
- Bankruptcies are becoming more frequent: a total of 16 bankruptcies were filed in the 1980s, 18 in the 1990s, and 22 between January 2000 and Spring 2002.

Compensation and Costs:

- A total of \$54 billion has already been spent on asbestos litigation.
- Transaction costs have consumed more than half of total spending.
- About 65 percent of compensation has gone to nonmalignant claimants.
- Compensation for mesothelioma claims has risen sharply since 1993.
- Estimates of the number of people who will file claims in the future—and the costs of those claims—vary widely, but they are all extremely high. All accounts agree that, at best, only about half the final number of claimants have come forward. At worst, only one-fifth of all claimants have filed claims to date. Estimates of the total costs of all claims range from \$200 to \$265 billion.

POLICY IMPLICATIONS

For asbestos compensation, the tort system itself is falling short of its principal objectives: to properly compensate injured victims for their losses, to deter defendants from injuring others, and to provide individualized corrective justice. Is there a better way to resolve asbestos claims fairly and efficiently? Despite the criticisms of the current asbestos litigation regime, many argue that it is the best feasible approach to assuring compensation for those injured by asbestos exposure. Under the laws of most jurisdictions, functionally unimpaired claimants who show clinical signs of asbestos exposure have compensable injuries. Whether the system should continue to compensate these claimants is the central issue in the current policy debate over asbestos litigation.

Maintaining the status quo means assigning a substantial compensation role to the bankruptcy trusts. Some view bankruptcy as a viable alternative to the tort system in that it can provide compensation at modest transaction costs. However, these benefits come at a high price for the plaintiffs, who typically receive only a tiny fraction of their claim's value, and for investors whose equity often disappears entirely. Alternatives to the status quo that have been

proposed include changes in substantive doctrines, changes in procedural rules, and creation of an administrative compensation program. We are continuing to analyze options for reform and will present the results in our final report.



***Asbestos Litigation Costs
and Compensation:
An Interim Report***

**Stephen Carroll, Deborah Hensler,
Allan Abrahamse, Jennifer Gross,
Michelle White, Scott Ashwood,
and Elizabeth Sloss**

A3823-1 08/02 **RAND**



Trends in Asbestos Litigation Are Raising Policy Concerns

- **Asbestos litigation began to attract policy attention in the early 1980s**
- **Settlement agreements in the late 1980s led many to believe litigation was “manageable”**
- **But rapid increases in the number of claims and costs have reawakened interest**
- **Litigation appears likely to continue**
- **Is there a better way of compensating asbestos victims?**

A3823-2 08/02 RAND

After the 1973 *Borel* decision (Borel v. Fibreboard, Fifth Circuit, U. S. Court of Appeals, 1973) found asbestos manufacturers strictly liable to workers injured as a result of exposure to their product, increasing numbers of product liability claims against asbestos manufacturers began to flow into the courts. By the early 1980s, well over 20,000 claimants had initiated lawsuits alleging injuries from exposure to asbestos. The growing volume of this type of litigation began to attract the attention of public policymakers.

Many of those involved in asbestos litigation devised procedures to streamline the process and reduce the burdens and costs they faced. Courts developed formal and informal approaches to managing asbestos litigation. A series of court decisions resolved most of the coverage disputes between defendants and insurers. Many defendants chose not to aggressively contest liability and instead negotiated settlements of large numbers of cases with leading plaintiff attorney firms. These agreements typically called for settling hundreds or thousands of cases per year at amounts specified in administrative “schedules” that reflected differences in injury severity and other characteristics deemed to affect the value of cases. Asbestos litigation continued to be a critical concern for the firms frequently named as defendants, but there were only a few dozen firms in this position. Most observers tended to view asbestos litigation as “manageable.” Asbestos litigation became a lower priority on the national political agenda.

However, the last few years have seen sharp increases in the number of asbestos claims filed annually, the number of firms named as defendants, and the costs of the litigation to these defendants. These increases have led to growing burdens on the courts, greater costs to the firms named as defendants, and greater numbers of firms filing for bankruptcy. Taken together, these trends raise a number of policy concerns, including whether there will be sufficient funds available to adequately compensate future claimants.

Is there a better way to resolve asbestos claims fairly and efficiently? Many observers are calling for reform, but there is little agreement on how to proceed.



**To Address These Concerns, Policymakers
Must Know the Dimensions of the Litigation**

- | | |
|-------------------------|--|
| Claims | <ul style="list-style-type: none"> • How many claims are there and of what type? • Who are the defendants? |
| Costs | <ul style="list-style-type: none"> • How much is being spent on litigation? • How much of that goes to claimants? |
| Economic effects | <ul style="list-style-type: none"> • What is the extent of asbestos bankruptcies? • What are the broad economic effects? |
| Future outlook | <ul style="list-style-type: none"> • Where is this all headed? |

The RAND study is addressing these questions

A3823-4 09/02 RAND

A clear understanding of the dimensions of the litigation is essential to the design of appropriate means for resolving asbestos claims. How many claims are being filed? By whom? Against whom? For what injuries? How much are claimants recovering? How many bankruptcies have been caused by asbestos litigation, and what are the overall economic effects of the litigation? More generally, what does the future hold?

Asbestos litigation poses challenges for plaintiff attorneys seeking compensation for asbestos injury victims, for defendants who must respond to the litigation while protecting shareholders' interests, for insurers who must cover the losses, and for financial institutions attempting to accurately assess the magnitude of current losses and future liabilities. Because of the number of people exposed to asbestos in the U.S., the injuries they have incurred, the financial losses attendant to these injuries and the ensuing litigation, and the potential economic impact of this litigation, asbestos litigation also poses unique challenges for the civil justice system.

This RAND Institute for Civil Justice study is intended to provide objective data and analysis to stakeholders and policymakers so that they can address the key policy questions: How well is the current process working? Can it be improved?



Few Data Are Available


- **No state or national registry of asbestos claims or lawsuits exists**
- **Most claims involve multiple defendants, each of which keeps its own records**
- **Claimants receive money from multiple sources over long periods of time**
- **Many data sources are not public**

A3823-5 08/02 RAND

It is difficult to understand the challenges posed by asbestos litigation and develop appropriate responses to them because so few data are available. There is no national registry of asbestos claimants. Some claims are not filed formally in court as lawsuits. Federal courts report the number of asbestos lawsuits filed, but in recent years most lawsuits have been filed in state courts, which do not routinely identify and report annual asbestos lawsuit filings.

The typical asbestos claimant brings a claim against many defendants—typically several dozen—each of which generally settles claims separately and keeps its own records. Any one defendant knows about the claims against it and its settlements, but it usually does not know how much other defendants are paying on a claim. Claimants may receive money from settlements over a long period of time. They may settle with some defendants today and other defendants next year and still others later on down the line.

Because so many conflicting interests and so much money are involved, almost all the data are viewed as highly sensitive and confidential. So, answers to simple questions such as, How many claims are there? and What does the litigation cost? are not readily available.

 <i>The ICJ-Analyzed Asbestos Litigation in 1982</i>	
	1982
Number of claimants	21,000
Number of defendants	300
Total costs up to 1982 (nominal \$)	\$1 B
Bankruptcies	3
Estimated future costs (nominal \$)	\$38 B

A3823-6 08/02 **RAND**

Those concerned with asbestos litigation were confronted with a similar problem in the early 1980s. A variety of stakeholders and policymakers had deep concerns about asbestos litigation, but data limitations impeded analysis of the problem. Then, as now, the ICJ was asked to identify the dimensions of the litigation, and it published a series of asbestos studies in the 1980s.

The results were considered shocking. RAND's report on the status of the litigation in 1982 (Kakalik et al., 1983) observed that about \$1 billion in compensation and litigation expenses had been spent by the end of 1982 on more than 21,000 open and closed asbestos product liability claims. Three major corporations had filed Chapter 11 bankruptcy petitions, identifying the costs of asbestos litigation as the principal reason for the filing. Respected analysts were predicting that the future costs of asbestos litigation could reach \$38 billion.



This Research Seeks to Update the Earlier Study

	1982	Today
Number of claimants	21,000	?
Number of defendants	300	?
Total costs to date (nominal \$)	\$1 B	?
Bankruptcies	3	?
Estimated future costs (nominal \$)	\$38 B	?

A3823-7 08/02 RAND

Now we are asking the same questions: How many claims are being filed? By whom? Against whom? For what injuries? How much is all this costing and where is the money going? How many bankruptcies have been caused by asbestos litigation, and what are the overall economic effects of the litigation? More generally, what does the future hold if present trends continue?



How We Dealt with Data Limitations

- **Built on our previous asbestos and mass tort research**
- **Used publicly available data**
- **Obtained internal reports from investment and insurance analysts**
- **Acquired confidential data from litigation participants**
- **Conducted interviews with litigation participants**

A3823-8 08/02 RAND

This analysis draws on data obtained from a wide variety of sources. RAND's previous research on asbestos and other mass toxic tort litigation has been widely cited in the public arena (Kakalik et al., 1983; Kakalik et al., 1984; Hensler et al., 1985; Hensler, 1992; Peterson & Selvin, 1991; Hensler & Peterson, 1993; Hensler, 1995; Hensler et al., 2000). We have drawn on the knowledge we acquired in these previous studies to establish historical and interpretative contexts for new information.

The nature of asbestos litigation and the issues it raises have generated considerable public documentation on the course of the litigation. We've collected publicly available data from a variety of sources—ranging from asbestos litigation reporters to corporations' SEC filings. Where we have found inconsistencies, we have either noted them or have not made use of the data. When corporations attribute filing for Chapter 11 to asbestos litigation, they often report the number of asbestos claims filed against them in their bankruptcy petitions. We obtained these data as well. Asbestos bankruptcy trusts—entities that are formed to pay asbestos claims after reorganization—typically report the number of claims filed against them to the court that has jurisdiction over the bankruptcy. All of these records are public, although they are not always easy to locate.

For example, many of the financial analysts and insurance analysts have conducted their own studies of asbestos litigation. If they used proprietary data

in their studies, we asked the analysts to review their analytic methods with us. Most of the analysts we interviewed were willing to discuss their approach with us and show us how they arrived at their results, even if they could not share their data with us. We have relied on only those studies that appeared to be sound in terms of the standards listed above.

We also obtained confidential data from many participants in the litigation. In each instance, we specified the data we sought and conducted sufficient investigation (for example, comparing information from multiple sources) to assure ourselves that the data provided to us were reliable. We used only data that we confirmed with other data or with other participants in the litigation.

We obtained data, on a confidential basis, on each of the claims brought against almost 200 defendants and trusts through 2000. A substantial number of these defendants have been prominent in the litigation and had received claims from tens of thousands, in some cases, hundreds of thousands, of people. Because asbestos claimants typically file claims against multiple defendants, the vast majority of the claimants on the list for one defendant also appeared on the list for another defendant. Accordingly, we could compare the information we obtained for one defendant to the information we obtained for other defendants to determine the reliability of the data. In the analyses reported below, we generally used only those data that proved reliable in the sense that data from different defendants agreed. We combined the data on individual claims.

We also obtained aggregate annual data on indemnity payments and defense costs for a large number of defendants. These data were available for some defendants from the early 1980s. In other cases, we were only able to obtain data for the last few years. In all, the data include more than 60,000 defendant-year observations. Almost all of these defendants had some insurance and insurance policies have coverage limits. Because there is always the possibility that a defendant and insurer can dispute whether a coverage limit has been reached, both defendants and insurers have strong incentives to maintain accurate data on indemnity payments and loss adjustment costs. Accordingly, we believe these data are reasonably accurate.

Finally, we conducted more than 60 interviews with key participants in the litigation, including plaintiff attorneys, corporate counsel, outside defense counsel, insurance company claims managers, investment analysts, and court-appointed neutrals. All of these interviews lasted at least one hour and several took considerably longer. The picture of the current state of asbestos litigation that emerged from these interviews was remarkably consistent. Where interviewees had sharply different views of the litigation than others, they noted that themselves and discussed why their perceptions differed. All of the

Interviews were conducted under promises of confidentiality to encourage candor, and we explained the purposes of the study and our general approach to all of the interviewees.



Outline

- How did we get here?
- Where are we today?
- Is there a better way?

A3823-11 08/02 RAND



How Did We Get Here?

- **Widespread occupational exposure led to many injuries**
- **Mass litigation techniques proved successful for plaintiffs**
- **Efficiency efforts promoted additional litigation**
- **Global settlements failed**
- **The litigation became increasingly concentrated in a few law firms**
- **Over time cases migrated to jurisdictions favorable to plaintiffs**

A3823-12 08/02 RAND



Widespread Occupational Exposure

- **Asbestos is abundant, inexpensive, versatile**
- **Failure to warn of its risks and inadequate protection increased exposure**
- **Estimated 27 million U.S. workers in high-risk industries and occupations exposed, 1940-1979**
- **Unknown numbers of workers exposed**
 - **In other industries and occupations**
 - **Since 1979**

A3823-13 08/02 RAND

Asbestos is abundant and inexpensive to mine and process. Because it is strong, durable, and has excellent fire-retardant capability, asbestos was widely used in industrial and other work settings, as well as in residential settings, through the early 1970s. Asbestos consumption in the United States peaked in 1973 and then dropped dramatically over the next several decades (Alleman & Mossman, 1997).

Before the 1970s, large numbers of American workers were exposed to asbestos, some for long periods of time and/or at high levels. With the passage of the Occupational Safety and Health Act (OSHA) in 1970, increasingly strict safety regulations governing workplace exposure to asbestos were put in place. In 1989, the EPA proposed banning all products containing asbestos, but as a result of a decision by the Fifth Circuit Court of Appeals (*Corrosion Proof Fittings v. E.P.A.*, 947 F.2d 1201 [5th Cir. Oct 18, 1991] [No. 89-4596]), opinion clarified (Nov 15, 1991), rehearing denied (Nov 27, 1991), that ban was set aside. After the court overturned the EPA's proposed rule, certain products containing asbestos remained banned and no new uses of asbestos (i.e., in products that had not historically contained asbestos) were permitted. However, some uses of asbestos remain legal in the United States. In material prepared for consumers, the EPA notes: "EPA does NOT track the manufacture, processing or distribution in commerce of asbestos-containing products" (U.S. Environmental Protection Agency [1999]). Exposure to naturally occurring asbestos, which may also cause disease, is generally not regulated (Renner, 2000).

That workplace exposure to asbestos can be dangerous was known well before World War II (Brodeur, 1985; Tweedale, 2000). Some asbestos manufacturers that were aware of the dangers of exposure to asbestos did not warn their employees of the risks of injury that stem from exposure to asbestos fibers, nor did they provide adequate protection for them (Brodeur, 1985; Castleman, 1996). Indeed, some asbestos manufacturers lobbied against stricter regulation of asbestos exposure in the workplace in the 1950s (Brodeur, 1985). It was these failures of public and private policy decades ago that set the stage for the current litigation.

The groundbreaking work on asbestos exposure-induced disease among U.S. workers was conducted by Dr. Irving Selikoff at the Mt. Sinai School of Medicine in New York (Selikoff, Hammond & Churg, 1964; Selikoff, Churg & Hammond, 1965; Selikoff & Lee, 1978). Litigators still use Selikoff and associates' work as the standard references on occupational exposure to asbestos, although the leading reference, Nicholson, Perkel & Selikoff (1982), estimated excess mortality due to asbestos-related disease only for workers exposed through 1979. Few epidemiological studies aimed at projecting total asbestos-related disease have been published since the Nicholson, Perkel & Selikoff study was published in 1982, and most of the more recent studies deal with asbestos exposure outside the United States (e.g., Banaie et al., 2000; Kjaergaard & Andersson, 2000; Magnani et al., 2000; Peto et al., 1999). The more recent epidemiological projections of asbestos-related disease in the United States have been limited to mesothelioma (Price, 1997). Litigation experts have used the Nicholson, Perkel & Selikoff (1982) estimates, more recent studies, and other data to project the number of future asbestos claims (Manville Personal Injury Settlement Trust, 2001; Stallard, 2001).

Nicholson, Perkel & Selikoff identified U.S. industries in which workers were at significant risk of asbestos exposure. These included *primary manufacturing*, including asbestos products (such as friction products, pipe and sheet, asbestos textiles, floor tiles, roofing, insulating and other building materials), gaskets, packing and sealing devices, and building paper and building board mills; *secondary manufacturing*, including heating equipment, boiler shops, industrial furnaces and ovens, and electric housewares and fans; *shipbuilding and repair*; and *construction*, including general contractors in residential and non-residential building construction and water, sewer, pipeline, communication and power line construction. They also identified workers in certain occupations who were at significant risk of asbestos exposure. Those workers included asbestos and insulation workers, automobile body repairers and mechanics, engine room personnel in the maritime industry, maintenance employees in chemical and

petroleum manufacturing and in the railroad industry, stationary engineers, stationary firemen, and power station operators. In all, Nicholson, Perkel & Selikoff they estimated that approximately 27.5 million workers in these industries and occupations had been exposed to asbestos from 1940 to 1979.

In recent years, workers from industries and occupations not included in Nicholson, Perkel & Selikoff's analysis have begun to file claims for asbestos-related injury. The etiology of these claims is sharply disputed. Some litigators on both the plaintiff and defense sides argue that most workers in these industries have not actually suffered significant asbestos exposure or injury and they should not be compensated for asbestos-related injury. Other litigators argue that Nicholson, Perkel & Selikoff simply focused on the potential for asbestos exposure and asbestos-induced disease in high-risk industries and occupations and ignored the risk of exposure in other industries. We have not been able to find any epidemiological study that has systematically investigated asbestos exposure and incidence of asbestos-induced disease that includes all industries and occupations in the U.S., although some analysts have examined patterns of legal claiming by industry (Manville Personal Injury Settlement Trust, 2001). Although some studies project cases of disease, not deaths (e.g., Walker et al. [1983] and Price [1997]), no study has provided a reliable estimate of how many people are sick at a given point in time as a result of occupational exposure to asbestos.



Many Injuries

- **More than 225,000 premature deaths estimated through 2009**
- **Variety of diseases**
 - **Mesothelioma**
 - **Other cancers, particularly lung cancer**
 - **Asbestosis**
 - **Pleural thickening or plaques**

A3823-16 08/02 RAND

The widespread exposure to asbestos led to what has been termed "the worst occupational health disaster in U. S. history" (Cauchon, 1999, p. 4). Nicholson, Perkel & Selikoff (1982) estimated that more than 225,000 "excess (i.e., premature) deaths" due to asbestos-related cancers would occur from 1985 through 2009 as a result of exposure to asbestos from 1940 through 1979. This number does not include deaths resulting from severe asbestosis, or from exposure to asbestos in other occupations and industries, or from post-1979 exposure to asbestos. Although Nicholson, Perkel & Selikoff's estimates are widely cited, they were disputed by some epidemiologists at the time of their publication. The Nicholson, Perkel & Selikoff estimates were derived from a study conducted by Irving Selikoff under a contract with the U.S. Department of Labor. A study conducted by Walker et al. (1983) projected many fewer excess cancer deaths due to exposure; it was conducted under contract to the Johns-Manville Corporation and was itself subject to criticism.

Estimating the numbers of asbestos-related deaths and diseases is complicated by the long latency periods associated with asbestos injuries. Generally, 20 to 40 years elapse between first exposure to asbestos and disease manifestation. For example, the Manville Trust found that the average year of first exposure to asbestos by claimants who filed a claim with the Trust during the 1990s was generally more than 40 years earlier (Claims Resolution Management Corporation, 2001, p. 20). Although 20 years of the projection period used by

Selikoff and Walker have elapsed, the projections from these studies are still difficult if not impossible to validate using actual data.

A variety of diseases have been linked to asbestos exposure as described below.

Mesothelioma is a cancer of the lining of the chest or abdomen. Asbestos is the only demonstrated cause of mesothelioma. However, some mesothelioma cases are not traceable to an asbestos exposure. The disease is regarded as inevitably fatal, usually within a year or two of diagnosis. It can occur even with a relatively low level of exposure. The incidence of mesothelioma is tracked in selected areas of the United States by the U.S. Centers for Disease Control (National Cancer Institute), providing a reliable source of information for epidemiological research.

A number of *other cancers* have been linked to asbestos, although they all may have other causes besides asbestos exposure. Aside from mesothelioma, lung cancer is the most frequently claimed malignant disease. There is general agreement that asbestos can cause lung cancer. The risk of lung cancer can be exacerbated by other factors, most notably smoking. There were high rates of smoking in the blue-collar industries where asbestos exposure was particularly high. In lung cancer cases, defendants often dispute plaintiffs' allegations that their cancer is attributable to asbestos exposure, rather than smoking. Other cancers asserted by asbestos claimants include leukemia, and cancers of the bladder, breast, colon, esophagus, kidney, larynx, lip, liver, lymphoid, mouth, pancreas, prostate, rectum, stomach, throat, thyroid, and tongue. The relationship of other cancers to asbestos is a subject of contention; defendants frequently dispute the causality of other cancer claims. No U.S. government agency monitors the incidence of asbestos-related cancers other than mesothelioma.

Asbestosis is a scarring of the lung tissue resulting from the effects of inhaled asbestos fibers. Technically, to meet the criteria for a clinical diagnosis of asbestosis, there must be decreased pulmonary function (American Thoracic Society, 1986). Asbestosis is a chronic disease that can be debilitating and is sometimes, but not usually, fatal. However, asbestosis can be asymptomatic or only mildly impairing. Severe asbestosis requires extensive high-level exposure to asbestos, which has not been prevalent in the U.S. for several decades. The National Institute for Occupational Safety and Health (NIOSH) publishes limited data on deaths due to asbestosis, but no U.S. government agency monitors the prevalence of asbestosis.

Pleural thickening or plaques is a scarring of the pleura, the membrane that lines the inside of the chest wall and covers the outside of the lung. People

exposed to asbestos may have plaques with no indications of diminished pulmonary function and may never suffer any functional impairment as a result of their exposure.

Because asbestos-related diseases have long latency periods, indicators of disease and impairment may not appear for many years. Some people who are first diagnosed with a non-disabling condition may develop more serious diseases some time in the future, but others will never do so.



Controversy over Injury and Impairment

- **Many say most recent claimants are “unimpaired”**
- **Others say relevant issue is whether claimants satisfy legal criteria for injury**
- **Controversy turns on value judgments and medical criteria**
- **Studies suggest that most claimants without malignancies are not currently functionally impaired**

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One of the most hotly contested issues in asbestos litigation is the extent to which claimants are affected by their exposure: that is, how sick or “impaired” they are. Some commentators say that many claimants are “not sick” and, because the funds available to compensate asbestos claimants are limited, they should not be compensated so that available funds can be directed toward those who “are sick.” “[In asbestos litigation,] ... plaintiffs with no physical impairment receive windfall settlements that reduce the amount of funds available to pay the claims of those who are truly sick or who may become truly sick” (Rothstein, 2001, p. 2).

Others strongly disagree with this position, arguing that the law in all 50 states requires that claimants are entitled to compensation only if they have suffered an injury or disease. It follows that, because these claimants have been compensated, they must have been injured, and there is no basis for suggesting that they are not entitled to compensation.

Value judgments are clearly at the heart of this debate. However, the meaning of the word “impaired” is also at issue. The American Medical Association’s definition of impairment is synonymous with injury: Impairment is defined as “a loss, loss of use, or derangement of any body part, organ system, or organ function” (American Medical Association, 2001, p. 2). A scar on the lungs, in this sense, is an impairment. Impairment *ratings*, however, as defined by the AMA, measure the functional limitations caused by an injury: impairment ratings reflect “an individual’s ability to perform common activities of daily

living, excluding work” (American Medical Association, 2001, p. 4). “For example, an anatomic change such as a circumscribed pleural plaque would be an impairment based on an abnormality in anatomic structure. However, if there were no abnormality in lung function and no decrease in the ability to perform activities of daily living, the individual would be assigned a 0% impairment rating” (American Medical Association, 2001, p. 88). Under the AMA guidelines, a person may be judged functionally impaired, while still being able to hold down a job.

In this report, we use the term unimpaired to refer to an individual who experiences no decrease in the ability to perform the activities of daily life. In other words, he or she would be assigned a 0% impairment rating according to the American Medical Association definition. It is important to note that claimants who are unimpaired in this sense when they file a claim may manifest more critical symptoms after an extended latency period.

Trends and patterns in the severity of nonmalignant claimants' injuries are difficult to identify because there is no database in which claimants' medical data are consistently and reliably entered over time. The only information on this subject comes from special studies in which an analyst draws a sample of individual claims from defendants' files and reviews the medical information provided by the claimants to determine whether the information in the file offers evidence that the claimant was impaired.

In 1995, the Manville Trust implemented an audit program in which independent B-readers reviewed the X-rays submitted by a random sample of claimants. The Trust operates under the supervision of federal district court judge Jack Weinstein. The B-readers were selected in consultation with the plaintiffs bar; none of the B-readers employed in the audit had testified on behalf of an asbestos defendant. The X-ray review process was designed to give the benefit of any doubt to the claimant. A claim was downgraded only if both B-readers independently determined that they saw no indication of even low-level, sub-diagnostic X-ray evidence of interstitial fibrosis. “[O]f the X-rays the Trust actually received, approximately 50% failed independent B-reader review” (Affidavit of Patricia G. Houser, In re: Manville Personal Injury Settlement Trust Medical Audit Procedures Litigation, 98 Civ. 5693, March 13, 1999, p. 9).

Several more recent studies have found fractions of unimpaired claimants ranging from two-thirds to up to 90 percent of all current claimants (Edley & Weiler, 1993; Bernick, 2001a; Rourke, 2001; Chambers, 2002). Because most of these studies were commissioned by defendants and because the issue of impairment is central to the asbestos litigation controversy, their findings are hotly contested.

Judge Charles Weiner, who manages the federal multi-district litigation (MDL) process for asbestos litigation, noted that a large volume of the claims that had been assigned to MDL 875 had been initiated through mass screenings. He ordered that such cases be administratively dismissed without prejudice because "[o]ftentimes these suits are brought on behalf of individuals who are asymptomatic as to an asbestos-related illness and may not suffer any symptoms in the future" (Administrative Order No. 8, In re: Asbestos Products Liability Litigation [No. VI], Civil Action No. MDL 875, E.D.Pa., Jan. 16, 2002, p. 1).

In sum, it appears that a large and growing proportion of the claims entering the system in recent years were submitted by individuals who have not incurred an injury that affects their ability to perform activities of daily living.